CLAIMS

1. The use of an inhibitor of the interaction of glutamate with the AMPA receptor complex in the manufacture of a medicament for treating cancer.

sub. A'

2. The use according to claim 1, wherein the type of cancer includes all kinds of cancer.

3. The use according to any preceding claim wherein the inhibitor is an antagonist of the binding of glutamate to the AMPA receptor.

4. The use according to any preceding claim, wherein the inhibitor is an L-glutamate derivative, an α-amino-3-hydroxy-5-methyl-4-isoxazolepropionate derivative, acid amide derivatives, amino alkanoic acid, amino-phenyl-acetic acid, amino- or desamino- 2,3-benzodiazepine, 2,3-benzodiazepin-4-one, alkoxy-phenyl-benzodiazepine, acetyl-aminophenyl-dihydro-methyl-dioxolo-benzodiazepine, benzothiadiazine, decahydroisoquinoline, β-carboline-3-carboxylic acid, fused cycloalkylquinoxalinedione, 4-hydroxypyrrolone, 4-hydroxy-pyrrolo-pyridazinone, indeno-pyrazine-carboxylic acid, indeno-pyrazinone, indoloneoxime, indolo-pyrazinone, indolo-pyrazinone, imidazo-pyrazinone, imidazolo-quinoxalinone, isatine, isatinoxime, oxadiazole, phenyl-azolophthalazine, phenylpyridazino-indole-1,4-dione, quinoline, quinolone, quinolonone, nitroquinolone, quinoxaline, quinoxalinedione, quinazolinone, 4-hydroxy-pyrrolo-pyridazinone, phenyl-azolophthalazine or sulphamate derivatives.

5. The use according to any of claims 1 to 4, wherein the inhibitor is L-glutamic acid diethylester, 2,3-dihydroxy-6-nitro-7-sulfamoyl-benzo(F)quinoxaline (NBQX), 6,7-dinitro-quinoxaline-2,3-dione (DNQX), 6-nitro-7-cyano-quinoxaline-2,3-dione (CNQX), 6-(1-imidazolyl)-7-nitro-quinoxaline-2,3(1H, 4H)-dione (YM90K), [2,3-dioxo-7(1H-imidazol-1-yl)-6-nitro-1,2,3,4-tetrahydro-1-quinoxalinyl]-acetic acid monohydrate (YM872), (3RS,4aRS,6RS,8aRS)-6-(2-(1H-tetrazole-5-yl)ethyl)-decahydroiso-quinoline-3-carboxylic acid (LY293558), 9-methyl-amino-6-nitro-hexahydro-benzo(F) quinoxalinedione (RNQX), 8-methyl-5-(4-(N,N-dimethylsulphamoyl)phenyl)-6,7,8,9-tetra-hydro-1H-pyrrolo[3,2h]-

isoquinoline-2,3-dione-3-O-(3-hydroxybutyric acid-2-yl)oxime (NS 1209), 6,7-dichloro-2-(1H)-quinolinone-3-phosphonate (S 17625-2), [1,2,3,4-tetrahydro-7-morpholinyl-2,3-dioxo-6-(trifluoromethyl)quinoxalin-1-yl]methyl-phosphonate (ZK200775), 1-(4-aminophenyl)-4-methyl-7,8-methylene-dioxy-5H-2,3-benzodiazepine (GYKI52466), topiramate and 5-{2-[2-(N,N-dimethylamino)ethyl]oxy-phenyl}-3-phenyl-1,2,4-oxadiazol, 1-(4-aminophenyl)-3-methylcarbamoyl-7,8-methylenedioxy-5H-2,3-benzodiazepine (GYKI 53655), (-)1-(4-aminophenyl)-4-methyl-7,8-mehtylenedioxy-4,5-dihydro-3-methylcarbamoyl-2,3-benzodiazepine (GYKI53773), dimethyl-{2-[2-(3-phenyl-[1,2,4]oxadiazol-5-yl)-phenoxy]ethyl}-amine hydrochloride (BIIR 561).

6. The use according to any of claims 1 to 2, wherein the inhibitor is an AMPA receptor channel blocker.

7. The use according to claim 6, wherein the AMPA receptor channel blocker is fluorowillardiine, Joro spider toxin, NSTX spider toxin, argiotoxin, or their derivatives.

8. The use of an inhibitor of the interaction of glutamate with the KA receptor complex in the manufacture of a medicament for treating cancer.

9. The use according to claim 8, wherein the type of cancer includes all kinds of cancer.

10. The use according to claim 8 and 9 wherein the inhibitor is an antagonist of the binding of glutamate to the KA receptor.

11. The use according to claims 8 to 10, wherein the inhibitor is an L-glutamate derivative, kainic acid derivative, domoic acid derivative, acid amide derivative, aminoalkanoic acid derivative, aminophenyl(alkyl)acetic acid derivative, isatine, quinoxalinedione, fused cycloalkylquinoxalinedione, imidazolo-quinoxalinone, phenyl-azolophthalazine, pyridothiazines, quinazoline, quinazolinedione, quinolinone, 4-phosphonoalkyl-quinolinone, quinoxalinedione, or sulphamate derivative.

12. The use according to any of claims 8 to 11, wherein the inhibitor is 2,3-dihydroxy-6-nitro-7-sulfamoyl-benzo(F)quinoxaline (NBQX), 6,7-dinitro-quinoxaline-2,3-dione (DNQX), 6-nitro-7-cyano-quinoxaline-2,3-dione (CNQX), 6-(1-imidazolyl)-7-nitro-quinoxaline-2,3(1H,4H)-dione (YM90K), [2,3-dioxo-7(1H-imidazol-1-yl)-6-nitro-1,2,3,4-tetrahydro-1-quinoxalinyl]-acetic acid monohydrate (YM872), (3RS,4aRS,6RS,8aRS)-6-(2-(1H-tetrazole-5-yl)ethyl)-decahydroiso-quinoline-3-carboxylic acid (LY293558), 9-methyl-amino-6-nitro-hexahydro-benzo(F)quinoxalinedione (PNQX), 8-methyl-5-(4-(N,N-dimethylsulphamoyl)phenyl)-6,7,8,9-tetra-hydro-1H-pyrrolo[3,2h]-isoquinoline-2,3-dione-3-O-(3-hydroxybutyric acid-2-yl)oxime (NS 1209), 6,7-dichloro-2-(1H)-quinolinone-3-phosphonate (S17625-2), [1,2,3,4-tetrahydro-7-morpholinyl-2,3-dioxo-6-(trifluoromethyl)quinoxalin-1-yl]methyl-phosphonate (ZK200775), 1-(aminophenyl)-4-methyl-7,8-methylenedioxy-5H-2,3-benzodiazepine (GYKI 52466), γ-D-glutamylaminomethylsulphonate (GAMS), γ-D-glutamylglycine.

13. The use according to any of claims 8 to 9, wherein the inhibitor is an KA receptor channel blocker.

14. The use according to claim 13, wherein the KA receptor channel blocker is fluorowillardiine, Joro spider toxin, NSTX spider toxin, argiotoxin, or their derivatives.

15. The use of an inhibitor of the interaction of glutamate with the NMDA/glycine/polyamine receptor/ion channel complex in the manufacture of a medicament for treating cancer.

16. The use according to claim 1, wherein the type of cancer includes all kinds of cancer.

17. The use according to claims 15 to 16 wherein the inhibitor is an antagonist of the binding of glutamate to the NMDA receptor or NMDA receptor associated binding sites such as e.g. glycine or polyamine binding sites.

18. The use according to claims 15 to 17, wherein the inhibitor is an L-glutamate derivative, a 4-hydroxy-3-nitro-1,2-dihydroquinolon-2-one derivative, an indole derivative , a benzo-thiadiazine dioxide derivative, an indeno(1,2-b)pyrazin-3-one or corresponding 2,3-dione, a quinoline derivative, an ethyl(phenyl-carbamoyl)-ethenyl)dichloroindole carboxylate, a thienopyrazine 2,3-dione derivative, a 2-(2,3-dicarboxycyclopropyl) glycine, a 2-amino-3-substituted phenyl propionic acid derivative, 1-carboxyalkylquinoxaline-2.3(1H,4H)dione derivative, a thienyl-glycine derivative, an indole derivative, a tricyclic quinoxaline-diene derivative, a 3-hydroxy anthranilic acid, a decahydroisoquinoline, a tri- or terta-substituted guanidine derivative, a D- or L-tryptophan derivative, a tetrazolyl(alkyl)-cyclohexyl-aminoacid derivative, an octahydrophenanthrene derivative, a benzomorphan, a piperazinyl or piperidinyl-alkyl substituted isoxazole derivative, a decahydroisoquinoline-3-carboxylic ester or its preparation, a compounds based on Conantokin-G peptide, a 3-heterocyclyl-alkyl-benzopyran-2-one derivative, a phosphono-alkyl imidazo-pyrimidine carboxylic acid derivative, amantadine, memantine, rimantidine, a histogranin peptide or analogue, a nitrobenzoic acid derivative, e.g 4-((2-methoxycarbonyl-4-nitrophenyl)methyl)piperazine carboxylic acid, a diamine derivative with selective sigma receptor affinity, remacemide (2-amino-N-(1,2-diphenyl-1-methylethyl)acetamide), a phosphono-alkylidene- or phosphono-alkoxy-imino-piperidine acid, a benzothiadiazine carboxylic acid derivative, a dihydro-benzothiadiazine dioxide carboxylic acid derivative, a 4-hydroxy 2(H) pyrrolone derivative, a quinoxaline derivative, a tetrahydro-imidazo (1,2-a) pyrimidines or its salt, a alpha-amino acid, a 4-hydroxy-pyrrolo(1,2-b)pyridazin-2(1H)-one derivative, a nitroquinolone derivative, a 3-aryl-substituted 2(1H)quinolone, a 2(1H)-quinolone, a phosphonic acid quinoline-2-carboxylic acid derivative, its per hydro quinoline derivative, a benzimidazole(s) carrying 2 acidic groups, an N,N'-disubstituted guanidine derivative, a tricyclic quinoxaline dione, a 2-(2,3-dicarboxycyclopropyl) glycine stereoisomer, an isatine derivative, a 3-amino-indolyl-derivative, 2-phenyl-1,3-propanediol dicarbamate (felbamate), a benzomorphan derivative, a dihydrothienopyridine derivative, an enantiomer of (aminophenyl)-heteroaryl ethylamine, a pyridazine-dione derivative, a 2H-1-benzopyran-2-one, a 4-sulphonylamino-quinoline derivative, a R-3-amino-1-hydroxy-pyrrolidine-2-one, a 2-carboxy indole, a substituted imino-methano dibenzo (A,D)cycloheptene derivative, an indole-hydrazone, a piperazine derivative, a 4,6-disubstituted tryptophan and kynurenine derivative, a fluorenamine, a diketo-pyrido pyrazine derivative, a 2-

amino-3,4-dioxo-1-cyclobutene derivative, a 2-acyl-amido derivative of 3,4-dihydro-3-oxo-quinoxaline, a benzimidazole phosphono-aminoacid derivative, a quinoxaline phosphono-aminoacid derivative, a piperazine, piperidine or pyrrolidone derivative, ist salts and isomeric forms including stereoisomers, a 4-hydroxy-2(1H)-quinolinone derivative, ist salts and prodrugs, a fused pyrazine derivative, a 2-phenyl or 2-thienyl-(2)-piperidine derivative, a 3-amido or 3-sulphamido-indolyl derivative, a 3-aryl-4-hydroxy-2-(1H)-quinolone derivative, a 2-heterocyclyl-2-hydoxy-ethylamine derivative, a 1-aryl-2-aminomethyl pyrrolidine, its optical isomers and acid-addn. salts, a 4,6-dihalo indole-2-carboxylic acid derivative, a cyclic amino-hydroxamate derivative, a tetracyclic amine derivative, a 2,4-dioxo-1,2,3,4-tetrahydroquinoline derivative, a 2,4-dioxo-1,2,3,4-tetrahydroquinoline derivative, a 3-phosphonopiperidine and p-pyrrolidine derivative, a benzothieno (2,3-B)-pyrazine-2,3-(1H,4H)-dione, a spiro dibenzosuberane derivative, a benzomorphan derivative, a preparation of 3,4-disubstituted 2-isoxazoline(s) and isoxazoles(s), a 3-indolyl thio-acetate derivative, an arginine-derived nitric oxide biosynthesis inhibitor, a dicyclic amine derivative, a spiroisoindole derivative, an imidazo(1,2-A)-pyridinylalkyl, a 1,2,3,4-tetrahydro-9H-pyrido indole or benzothiophene derivative, an indole-2,3-dione-3-oxime derivative, a 1-aryl-2-(aminomethyl)cyclopropanecarboxamide derivative, a 4-phosphono-2-amino-alkenoic acid derivative, a naphthopyran derivative, a beta-ketone, a beta oxime or beta hydrazine phosphonate, a topa quinone aminoacid, kynurenic acid or its derivative, a quinoline- or thienopyridine-carboxylic acid derivative, a 10,5-(imino-methano)-10,11-dihydro-5H-dibenzo(A,D)cycloheptene or a derivative, a bicyclic amino-hydroxamate derivative, an indole-2-carboxylic acid derivative, a substituted adamantane derivative, a benzobicycloalkane derivative, a 2,4-disubstituted-1,2,3,4-tetrahydro-quinoline derivative, a dihydro-alkyl-substituted-(immunomethano)-5H-dibenzo-cycloheptene, an aryl cyclohexylamine, an N-substituted benzobicycloalkane amine, an isoquinoline phosphonate derivative, an N,N'-disubstituted-guanidine, a phosphonopropenyl piperidine carboxylic acid, (2R,3S,4S)-alpha-carboxy-cyclo-propyl-glycine, a pyrrolidine derivative, a dihydroxy-fused heterocyclyl quinoxaline derivative, a hydrogenated derivative of MK 801 and analogues, a 5-substituted10,11-dihydro 5H-dibenzo (a,d) cycloheptene 5,10-imine, an 11-exo-hydroxy MK 801 preparation including electrochemical cyclisation step to form 5,10-imine bridge in 5-methyl 5-oxyamino 5H-dibenzo (A,D) cycloheptene, a tetra hydro-isoquinoline or 2-

benzazepine derivative, an N-3-phenyl-propionyl-substituted spermine or related polyamine derivative, a 4a-amino-fluorene or its heterocyclic analogue, a cyclooctane-imine derivative, a R-3-amino-1-hydroxy pyrrolidin-2-one or methionine hydroxamate, a 10,11-dihydro-5H-dibenzo-cyclohepten-5,10-imine, a polyhydro-10,11-dihydro-5H-benzo(a,d)cyclohepten-5,10 imine derivative, a 4-oxo-1,4-dihydroquinoline with 2-acidic groups, a heterocyclyl-alkene-phosphonic acid, a phosphono gp-containing pyridine 2-carboxylic acid, an alpha-amino-alpha-(3-alkylphenyl)alkyl ethanoic acid, its esters or amides, a 10,11-dihydro-5H-dibenzo-A,D-cyclohepten-5,10-imine, a phosphorus containing unsatturated amino acid or its salts, a 5 substituted-1-,11-dihydro-5H-dibenzo-cyclohepten-5,10-imine, a heterocyclic phosphonic acid derivative, a substituted 4-(amino-carbonyl-amino)quinoline, a tricyclic quinoxaline derivative, a butyryl-tyrosine spermine or its analogues, a tri- or tetra-substituted guanidine, a quinoxalinylalkyl-aminoalkane phosphonic acid derivative, a 2-(aminophenyl)-3-(2-carboxy-indol-3-yl)-propenoic acid derivative, a 6-piperidinylpropionyl-2(3H)-benzoxazolone derivative, 6-(3-[4-(4-fluorobenzyl)piperidin-1-yl]propionyl)-3H-benzoxazol-2-one, an imidazo(1,2-a)pyridine, a tetrahydroquinoline derivative, a 2-methyl-5,8-substituted 2,3,4,5-tetra- or 2,3,4,4a,5,9b-hexahydro-1H-pyrido[4,3-b]indole, a 3-aminoindolyl compound, a 6-pyrrolyl-quinoxaline-2.3-dione derivative, an imidazolyl-(mercaptoalkyl)-quinoxaline-dione, a 3-amidoindolyl derivative, a heterocyclyl-imidazolo-quinoxalinone, a naphthyl-substituted alpha-amino acid, a 5-hetero-aryl-2,3-quinoxaline-dione, a quinoxaline derivative, a 5H,10H-imidazo indeno 4-pyrazinone derivative, a hydroxy-(aryl-substituted phenyl)-quinolone, an imidazo indolo pyrazinone derivative, a ((phenyl-amino)-(m)ethyl)-pyridine derivative, a tetrahydro-isoquinoline derivative, a 4-substituted piperidine, a 2-substituted piperidine derivative, a tri- or tetra-substituted guanidine derivative, a 3-hydroxy-4-imidazolidinone, a 3-aminoquinoxalin-2-one derivative, 1-amino-1-cyclobutanecarboxylic acid, a thiamorphinan derivative, a pyrido[4,3-b]indole derivative, 4-phenyl carbamoyl methylene tetrahydro quinoline-2-carboxylic acid derivatives, (3R,4S)-3-(4-(4-fluorophenyl)-4-hydroxy-piperidin-1-yl)-chroman-4,7-diol, a phenol derivative, an indeno-pyrazin-4-one, a 2,3-dioxo-1,2,4,5-tetrahydro-quinoxalinyl derivative, a 4,5-bridged quinoxalinedione or quinolone, (1S,2S)-1-(4-hydroxyphenyl)2-(4-hydroxy 4-phenyl piperidin-1-yl) 1-propanol methane sulphonate trihydrate, a 4-sulphanimide-quinoline derivative, a methanobenzocyclodecen-13-amine, a quinoxalinyl-(alkane,alkene,or alkyne)-phosphonic acid, a diarylalkylamine related to spider

and wasp venom toxins, a piperazine R-alpha-carboxylic acid derivative, an imidazo-indeno-pyrazin-4-one derivative, a pyridazino-quinoline derivative, a 1-substituted or 1,3-di-substituted. 1,3-diaryl-guanidine, an aza-cycloalkyl-fused quinoxaline-dione, a 3-substituted 2-carboxy-indole derivative, a (2R)-N-trityl-4-oxo-5-(dimethyl phosphono)-nor-valinate ester, a kynurenic acid derivative, an indole carboxylic acid derivative, a 6-(tetrazolyl or isoxazolyl)-decahydroisoquinoline-3-carboxylic acid derivative, a phenyl- or pyridinyl-thieno-pyridinone derivative, a fused cycloalkyl-quinoxaline-dione derivative, a pyridazino-quinoline derivative, a 1-alpha-amino-3-biphenyl-propanoic acid derivative, a 3-(indol-3-yl)propenoic acid derivative, a spiro-heterocycle-imidazo-indeno-pyrazine-4-one derivative, a 2-heterocyclyl-3-indolylpropenoic acid derivative, a piperidinoalkyl heterocyclic ketone or alcohol, a pyrrolyl-tetrahydro-benzoquinoxaline-dione derivative, a 7-imidazolyl or dialkylaminotetrahydroquinoxaline dione, a dibenzocycloheptene, a quinoxaline derivative, an aryl-thio-quinoxaline derivative, a heterocyclic substituted imidazolo-quinoxaline derivative, a 1,4-dihydro-quinoxaline-2,3-dione derivative, an oxa- or thio-aliphatically bridged quinoxaline derivative, an aza-aliphatically bridged quinoxaline-2,3-dione, a 3-amido- or 3-sulphamido-indole, a 3,5-disubstituted phenyl-naphthalene derivative, an imidazo (1,2-a)indeno (1,2-e) pyrazine-2-carboxylic acid derivative, a 3-phenyl-fused ring pyridine-dione derivative, a 2-phenyl-pyridazino-indole-dione derivative, a 4,6-disubstituted kynurenine, a phosphono derivative of imidazo(1,2-a)pyrimidine-2-carboxamide, a tetrahydro-quinoxaline-dione derivative with N-(alkyl)carbonyl-amino- or ureido group, a tryptophan derivative, a hetero-aliphatic or hetero-araliphatic substituted quinolone derivative, an imidazo-pyridine dicarboxylic acid derivative, an ethanodihydrobenzoquinolizinium, an oxopyridinylquinoxaline derivative, an indeno-triazolo-pyrazin-4-one derivative, an imidazo-indeno-pyrazinone derivative, an imidazo-indeno-pyrazin-4-one derivative, an imidazo(1,2-a)pyrazine-4-one derivative, a 5H-indeno-pyrazine-2,3-dione derivative, a phenyl-aminoalkyl-cyclopropane N,N-diethyl carboxamide, a dexanabinol derivative, a substituted chroman derivative, a sulphonamide quinazoline-2-4-dione, a 6- and 8-aza-, and 6,8-diaza-1,4-dihydro-quinoxaline-2,3-dione derivative, a substituted quinoline derivative, a tetrazolylalkyl cyclohexyl aminoalkanoic acid, a tricyclic indole 2-carboxylic acid derivative, a 6-substituted-7H-imidazo-8-pyrazinone derivative, a tricyclic pyridazinopyridine derivative, an N-substituted heterocyclylidenemethyl-indole carboxylic acid derivative, a 3-aza-8-substituted-

bicyclo(3.3.0)octane-2-carboxylic acid derivative, an ethano-heterocyclo-isoquinolinium, a phenyl alkanolamine derivative, a dihydrobenzothiadiazinedioxide carboxylic acid derivative, a methyl-butenylmethyl(hydroxy-propyl)carbazoledione, an imidazo pyrazinone derivative, an imidazo-(1,2-a)pyrazine-4-one, a benzazepine-dione derivative, disulfiram, a 3-(indol-3-yl)-propenoic acid derivative, a 1,2,3,4-tetrahydro-quinoline-2,3,4-trione-3 or 4-oxime, a peptide antagonist at NMDA receptors, a 2-amino-2-phenyl(alkyl)-acetic acid derivative, 6-halo-tryptophan or a 4-halo-kynurenine, a 6-tetrazolyl or isoxazolyl-decahydro-isoquinoline-3-carboxylic acid derivative, or an imidazolylbenzene or salts thereof.

19. The use according to any of claims 15 to 18, wherein the inhibitor is 3-(2-carboxypiperazin-4-yl)-propyl-1-phosphonate (CPP), 2-(carboxypiperazine-4-yl)-1-propenyl-1-phosphonic acid (D-CPPene), 2-amino-5-pentanoic acid (AP5), 2-amino-7-heptanoic acid (AP7), selfotel (CGS19755), (1S,2S)-1-(4-hydroxyphenyl)-2-(4-hydroxy-4-phenylpiperidino)-1-propanol (CP101606), 5-nitro-6,7-dichloro-quinoxalinedione (ACEA1021), pyridazino[4,5-b]quinoline-1,4,10(5H)-trione,7-chloro-2,3-dihydro-2-(4-methoxy-2-methylphenyl)-, monosodium salt (ZD9379), 1H-indole-2-carboxylic acid, 4,6-dichloro-3-[3-oxo-3-(phenylamino)-1-propenyl]-, monosodium salt (GV150526), 1-aminocyclopropanecarboxylic acid (ACPC), eliprodil (SL820715), lubeluzole, aminophosphovaleric acid, memantine (1-amino-3,5-dimethyladamantane), 3-(4-chlorophenyl)glutamic acid, (+)-beta-cyclazocine, (-)-beta-cyclazocine, DL-(E)-2-amino-4-methyl-5-phosphono-3-pentanoic acid (CGP 37849), 3-[(RS)-2-carboxypiperazin-4-yl]propyl-1-phosphonic acid, ketamine, phencyclidine, dextrorphan, dextromethorphan, N-(1-naphthyl)-N'-(3-ethylphenyl)-N'-methylguanidine hydrochloride (aptiganel, CNS1102), ifenprodil, (+)-alpha-phenyl-2-pyridine-ethanamide (FPL 15896AR), 5-aminocarbonyl-10,11-dihydro-5H-dibenzo[a,d]cyclohepten-5,10-imine (ADCI), bis(3-aminopropyl)nonanediamine (TE393), N-(3-aminopropyl)octanediamine, magnesium salts, 2R,4R,5S-(2-amino-4,5-(1,2-cyclohexyl)-7-phosphono-heptanoic acid, 3-amino-1-hydroxy-2-pyrrolidinone (HA 966), D-(E)-4-(3-phosphonoprop-2-enyl)piperazine-2-carboxylic acid (CGP 40116), (+/-)(E)-2-amino-4-methyl-5-phosphono-3-pentenoate ethylester (CGP39551), (+)-(3S,4S)-7-hydroxy-delta 6-tetrahydrocannabinol-(1,1)-dimethylheptyl (HU 211), (+)-l-methyl-1-phenyl-1,2,3,4-tetrahydro-isoquinoline hydrochloride (FR115427), (+/-)-6-phosphonomethyl-decahydroisoquinolin-3-carboxylic acid (LY274614), 3-isoquinolinecarboxylic acid, decahydro-6-(1H-tetrazol-5-ylmethyl)-,[3R-

(3alpha,4alpha,6beta,8alpha)] (LY 233536), 2-amino-4,5-(1,2-cyclohexyl)-7-phosphonoheptanoate (NPC 12626), (2R,4R,5S-2-amino-4,5-(1,2-cyclohexyl)-7-phosphono-heptanoic acid (NPC 17742), procyclidine, D-(E)-2-amino-4-methyl-5-phosphono-3-pentenoic acid (CGP 40116), (+)5-methyl-10,11-dihydro-5H-dibenzo[a,d]cyclohepten-5,10-imine, D,L-(E)-2-amino-4-propyl-5-phosphono-3-pentenoic acid, D-norvaline-4-oxo-5-phosphono (MDL-100453), cis-4-(phosphonomethyl)-2-piperidinecarboxylic acid, D,L-(E)-2-amino-4-propyl-5-phosphono-3-pentenoic acid (CGP 39653), conantokin-T, conantokin-G, γ-L-glutamyl-L-aspartate, (+/-)-(2SR,4SR)-4-(1H-tetrazol-5-ylmethyl)piperidine-2-carboxylic acid, DL-(E)-2-amino-4-methyl-5-phosphono-3-pentanoic acid (CGP 37849), (+/-)-3-carboxy-5-phosphono-1,2,3,4-tetrahydroisoquinoline (SC 48981), 1,2,3,4-tetrahydro-5-(2-phosphonoethyl)-3-isoquinoline-carboxylic acid, (1S,2S)-1-(4-Hydroxyphenyl)-2-(4-hydroxy-4-phenylpiperidino)-1-propanol (CP-101,606,1), (3R,4S)-3-[4-(4-fluorophenyl)-4-hydroxypiperidin-1- yl]chroman-4,7-diol (12a, CP-283,097), ifenprodil derivatives 1-piperidineethanol,4-hydroxy-alpha-(4-hydroxyphenyl)-beta-methyl-4-phenyl-,[R-(R*,R*)] (CP-101,581) and 1-piperidineethanol,4-hydroxy-alpha-(4-hydroxyphenyl)-beta-methyl-4-phenyl-(alphaS,betaS) (CP-98,113), (+/-)-(E)-beta-cyclazocine, D-α-aminoadipate (DAA), zinc salts, ibogaine, dextropropoxyphene, [3H]1-[1-(2-thienyl)cyclohexyl]piperidine (TCP), 2-phenyl-1,3-propane-diol dicarbamate (felbamate), kynurenic acid, amantadine, flupirtine (Katadolon), nitrous oxide (laughing gas), 4-{3-[4-(4-fluoro-phenyl)-3,6-dihydro-2H-pyridin-1-yl]-2-hydroxy-propoxy}-benzamide (Ro 8-4304), N1,N4,N8-tri-benzyl-spermidine (TB-3-4), l(-)-3R,4aS,6R,8aR-6-(phosphonomethyl)-decahydroiso-quinoline-3-carboxylic acid (LY235959), 2H-1,2,4-benzothiadiazine-1-dioxide-3-carboxylic acid (RPR 104632), dizocilpine maleate {(+)-5-methyl-10,11-dihydro-5H-dibenzo[a,d]-cyclohepten-5, 10-imine maleate} ((+)MK-801), 2R, 4R, 5S-(2-amino-4,5-(1,2-cyclohexyl)-7-phosphonoheptanoic acid) (NPC 17742), cis-(+/-)-4-[(2H-tetrazol-5-yl)methyl]piperidine-2-carboxylic acid (LY 233053), 2-amino-6-phosphonohexanoic acid, D-2-amino-5-phosphonovaleric acid (5-APV), (+-)-2-amino-N-ethyl-alpha-(3-methyl-2-thienyl)benzeneethanamine 2HCl (8319), desipramine, [3H]N-(1-(2-thienyl)-cyclohexyl)-3,4-piperidine (TCP), 4-(phosphonomethyl)-phenylglycine (PD 129635), 3-(phosphonomethyl)phenylalanine (PD 130527), tiletamine, arginine vasopressin, O-phosphohomoserine, D-(E)-2-amino-4-methyl-5-phosphono-3-pentenoic acid (CAS 137424-81-8), [+/-]-5-aminocarbony-10,11-dihydro-5H-dibenzo[a,d]cycloheptan-5,10-imine (ADCI), 7-

chlorokynurenate, ketoprofen, [(S)-Alpha-phenyl-2-pyridine-ethanamine dihydrochloride] ARL 15896AR, ((3S,4aR, 6R, 8aR)-6-[2-(1 H-tetrazol-5-yl)-ethyl]-1,2,3,4,4a,5,6,7,8,8a-decahydroiso-quinoline-3 -carboxylic acid) (LY293558).

20. The use according to any of claims 15 to 16, wherein the inhibitor is an NMDA receptor channel blocker.

21. The use according to claim 20, wherein the NMDA receptor channel blocker is dizocilpine (MK801), memantine, budipine, flupirtine, remacemide, phencyclidine, tiletamine, ketamine, carvedilol, aptiganel (CNS1102), remacemide (FPL12924AA), 7-hydroxy- Delta (6)-tetrahydrocannabinol 1,1-dimethylheptyl (Dexanabinol; HU211), 1-[1-(2-thienyl)cyclohexyl]piperidine (TCP), or their derivatives.

22. The use according to any of claims 1 to 2, 8 to 9, and 15 to 16 wherein the inhibitor is a glutamate release inhibitor.

23. The use according to claim 22, wherein the glutamate release inhibitor is i.e. riluzole, lamotrigine, diphenylhydantoin, tetrodotoxin, agatoxin-glutamate-release-inhibitor (AG-GI), [5-(2,3,5-trichlorophenyl)]-2,4-diamino-pyrimidine (BW1003C87), (R)-(-)-5-methyl-1-nicotinoyl-2-pyrazoline (MS-153) and 4-amino-2-(4-methyl-1-piperazinyl)-5-(2,3,5-trichlorophenyl)pyrimidine (BW619C89) or any other agent that decreases the release of glutamate from nerve endings and prevents glutamate from binding to its binding sites and from triggering the signal that would occur as a result of binding of glutamate to its binding sites.

24. The use according to any of claims 1 to 2, 8 to 9, and 15 to 16 wherein the inhibitor is a glutamate synthesis inhibitor.

25. The use according to claim 24, wherein the glutamate synthesis inhibitor is gabapentin, L-canaline, phenylsuccinate, spermidine, putrescine, gentamicin, orthovanadate, vanadyl sulphate, vanadyl acetylacetonate, methionine sulphoximine, chloroquine, amodiaquine, quinacrine, chinidine, chinine, α-monofluoromethylputrescine and (R,R)-delta-methyl-α-

acetylenic-putrescine, or any other agent which interacts with glutamate synthesis or metabolism and prevents activation of its receptors by glutamate.

26. The use according to any of claims 1 to 2, 8 to 9, and 15 to 16 wherein the inhibitor is an agent accelerating glutamate uptake.

27. The use according to claim 26, wherein the agent accelerating glutamate uptake is γ-glutamyl-transpeptidase, or any other agent which decreases synaptic concentration of glutamate by activating uptake mechanism for glutamate.

28. The use according to any of claims 1 to 2, 8 to 9, and 15 to 16 wherein the inhibitor is an agent that interacts with glutamate itself and prevents its binding to glutamate receptors.

29. The use according to claim 28, wherein the agent that interacts with glutamate is D-serine, D-cycloserine, γ-L-glutamylglutamate, N-phthalamoyl-L-glutaminic acid, (R,S)-2-amino-3-[5-tert-butyl-3-(phosphonomethoxy)-4-isoxazolyl]propionic acid, α-N-acetylaspartylglutamate, 1-aminocyclopropanecarboxylic acid, aminocyclobutane cyrboxylic acid, (+,R)-3-amino-1-hydroxy-2-pyrrolidine (HA966) and D,L-threo-3-hydroxyasparate, or any other agent which changes conformational state of glutamate and therefore decreases its binding to receptors. Furthermore such agents include soluble forms of AMPA, kainate or NMDA receptors or parts thereof which can be used to circulate and to bind to glutamate and therefore decrease its binding capability to the receptors.

30. The use according to any of claims 1 to 2, 8 to 9, and 15 to 16 wherein the inhibitor is a glutamate transporter activator that decreases the concentration of glutamate and prevents its binding to the AMPA, kainate or NMDA receptors.

31. The use according to claim 30, wherein the agent that blocks glutamate transporter is 12-O-tetradecanoylphorbol-13-acetate and phorbol-12-myristate 13-acetate, or any other agent which accelerates the function of glutamate transporters.

32. The use according to any of claims 1 to 2, 8 to 9, and 15 to 16 wherein the inhibitor is an antibody interacting with AMPA, kainate, or NMDA receptors of parts of it or with glutamate and prevents binding of glutamate to its receptors.

33. The use according to claim 32, wherein a preferred antibody which binds specifically to the AMPA, kainate or NMDA receptor or a part thereof, or to glutamate is monoclonal or polyclonal or derivative thereof.

34. The use according to any preceding claim wherein the inhibitor is combined with one or more of:

a cytostatic agent (such as alkylating agents e.g. nitrogen mustard, chlorambucil, melphalan, cyclophosphamide, busulfan, nitrosoureas, BCNU, CCNU, methyl-CCNU; such as antimetabolites e.g. antifolates, pyrimidine and purine analogs including e.g. methotrexate, 5-fluorouracil, azathioprine, cytosine arabinoside, 6-thioguanine, 6-mercaptopurine; such as natural products based anticancer drugs including e.g. doxorubicin, daunorubicin, daunomycin, actinomycin D, bleomycin, mitoxantrone, neocarzinostatin, procarbazine, mitomycin C, vinblastine, vincristine, etoposide; such as intercalating drugs e.g. cisplatin, carboplatin; and other anticancer drugs such as e.g. dacarbazine);

an immunomodulating agent (e.g. corticosteroids as e.g. prednisone and methylprednisolone; interferons such as interferon-α (IFN-α), IFN-β, IFN-γ, and other potential modulators such as e.g. interleukins (IL-1 - IL7));

and with physical measures such as irradiation, or hyperthermia. The agents of present invention can also be combined with mono- or polyclonal antibodies, antisense therapeutics, cancer vaccines, and gene therapy.

35. A method of screening for an agent useful in treating cancer, determining whether or not said agent is an inhibitor of the interaction of glutamate with the AMPA, kainate, or NMDA receptor complex on tumor cells.

36. A pharmaceutical composition comprising an inhibitor as described in any of claims 1 to 34 and a pharmaceutically acceptable carrier.

37. A combined preparation of an inhibitor as described in any of claims 1 to 34 and one or more of:

a cytostatic agent (such as alkylating agents e.g. nitrogen mustard, chlorambucil, melphalan, cyclophosphamide, busulfan, nitrosoureas, BCNU, CCNU, methyl-CCNU; such as antimetabolites e.g. antifolates, pyrimidine and purine analogs including e.g. methotrexate, 5-fluorouracil, azathioprine, cytosine arabinoside, 6-thioguanine, 6-mercaptopurine; such as natural products based anticancer drugs including e.g. doxorubicin, daunorubicin, daunomycin, actinomycin D, bleomycin, mitoxantrone, neocarzinostatin, procarbazine, mitomycin C, vinblastine, vincristine, etoposide; such as intercalating drugs e.g. cisplatin, carboplatin; and other anticancer drugs such as e.g. dacarbazine),

an immunomodulating agent (e.g. corticosteroids as e.g. prednisone and methylprednisolone; interferons such as interferon-α (IFN-α), IFN-β, IFN-γ, and other potential modulators such as e.g. interleukins (IL-1 - IL7).